PACIFIC 1® NORTHWEST INDUSTRIES

Seattle-First National Bank
June 1983
Annual Review

THE NORTHWEST BLEND

The Pacific Northwest. To residents of Washington, Oregon, Idaho, Montana, and Alaska, the term conveys something more than just boundaries on a map. With a hopefully forgiveable lack of humility, Pacific Northwesterners lay claim to a special commonality of roots, ties, and interests. There is diversity, too. Certainly Alaska, vast and remote from the rest of the region, could well be considered unique. Yet the Pacific Northwest defined by the boundaries of five states is not too loose a fit. Compared to the rest of the nation, the entire region is relatively young and relatively distant from most major U.S. markets; reliance on land and water resources continues to be high; and intraregional trading and commuting patterns help to bind the states together. Over time, the Pacific Northwest is becoming economically more diversified; effectively less remote as population shifts westward, transportation and communications systems improve, and trading relationships change; and in other ways converging with average experience nationwide. In the process, however, Pacific Northwesterners seek to retain a unique identity while selectively incorporating growth and change.

Land for Living

Abundant land and water resources spurred initial development of the Pacific Northwest, and resource ties have remained strong. The Pacific Northwest accounts for about 27 percent of the nation's land area. The vast northern reaches of Alaska, however, bulk large in land use comparisons. The four contiguous states account for 11 percent of U.S. land area, a similar percentage of U.S. farmlands, and a slightly higher share — 15 percent — of U.S. timberlands. Alaska contributes another couple of percentage points in timberland share, but relatively little in farmland.

Forest and farm resource utilization continues to be very important. Despite some slowing in regional lumber and plywood production in recent years, the Northwest still claims a 40 to 50 percent national market share. On the farm front, the region's big cash crops also claim large market shares; in 1981 — a generally good production year — the Northwest produced about 20 percent of the nation's wheat by value, and between 30 and 40 percent of the potato, apple, and barley crops. The Alaska contribution enters heavily in fisheries, where the region sports a one-third share of the national value of catch, and of course in minerals, as the North Slope has propelled Alaska into the major leagues of petroleum production.

Just as Pacific Northwest lands and resources have influenced how Northwesterners make a living, so have they influenced the style of living. With 27 percent of the nation's land area, the region's 9 million plus residents comprise only 4 percent of the population; only in Washington State is population density about on a par with the national average. Similarly, only two-thirds of regional residents opt for urban living as opposed to three-fourths nationwide. In Idaho and Montana, the split is nearer fifty-fifty.

In other respects, however, Pacific Northwesterners, on the whole, are remarkably average. According to the 1980 Census of Population, a typical proportion of residents 16 years old or older — somewhat over 60 percent — were either employed or available for work. Alaska had a higher ratio, due no doubt to an unusually low population in retirement ages. Occupationally, regional job distributions largely mirrored the national experience; the most significant differences were in farming/forestry/fishing, higher than average at 5 percent of all jobs, and in assembly-line-related occupations, below average at 6 percent. Pacific Northwest residents also were favored with slightly higher shares of managerial and professional jobs.

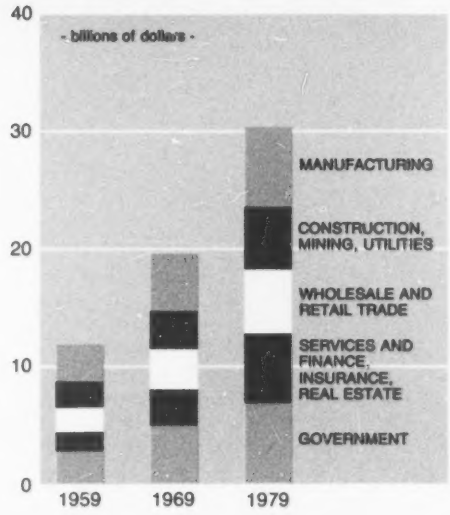
In terms of income, the typical Pacific Northwesterner also is the typical American. Per capita personal income in 1981 was a little above the U.S. average; census estimates of 1980 average household income were right on the money with the U.S. figure. Within the region, however, Alaska household income was over 40 percent higher. Most of this apparent bonus would be soaked up by higher costs of living in the farther North; apart from that, the high income may reflect Alaska's very high proportion of managerial and technical jobs. Furthermore, Alaskans in 1980 reported a remarkable 83 percent incidence of high school completion and 45 percent incidence of one or more years of college among those 25 years of age or older — another likely tie-in with above average income. In the other four states, high school completion still averaged 76 percent, a full ten points above the national average of 66 percent; completion of one or more years of college averaged 38 percent, compared to 32 percent nationwide. While not conclusive, income and education comparisons at least suggest there are nonmonetary inducements to Pacific Northwest living.

Mechanics of Regional Growth

Despite its volatility over the past thirty years or so, the Pacific Northwest for the most part has expanded more rapidly than the nation as a whole. Between 1950 and 1980, population growth regionally was about one-third more rapid, and nonfarm employment expansion, about one-fourth faster. Measuring overall size of the regional economy by personal income received by residents, the Pacific Northwest accounts for about 4 percent of the national total — roughly the same proportion as for population. Regional economic activity fluctuates rather widely; however. A number of indigenous industries tend to be rather seasonal; additionally, the regional

Cover photos courtesy Port of Seattle (inserts) and Seattle-First National Bank, Corporate Communications Department (vista).

NONFARM PAYROLLS IN CONSTANT DOLLARS
Pacific Northwest States
1959, 1969, and 1979



Nonfarm payrolls in the Pacific Northwest rose at a 4.9 percent compound annual rate from 1959 to 1969 and at a 4.5 percent rate from 1969 to 1979 — after adjustment to remove the effects of inflation. Manufacturing industries lost ground to services each passing decade. Since the economy was at or near a cyclical peak in each of the years 1959, 1969, and 1979, the shift suggests a long-term secular trend, rather than a temporary cyclical movement.

Source: U.S. Department of Commerce; deflated by U.S. Personal Consumption Deflator.

Communications is among the most vibrant, fastest growing industries in the information/service sector. Courtesy of McCaw Communications Companies, Inc.

economy at times is whipsawed violently by cyclical swings in particular markets — forest products sensitivity to housing construction nationwide is a prime example. A strong commitment to aerospace manufacturing magnified the impact on Washington State of the early Seventies recession; conversely, a few years later the very same sector provided exceptional offset in the subsequent 1974-1975 recession.

Over the long term, resource-based industries have continued to provide a strong underpinning for the regional economy. In 1959, 1969, and 1979 — years at or near business cycle peaks — wage and proprietor income to farmers, plus wages and salaries earned in food processing, forest products manufacturing, and mining ranged from 6.4 percent to 7.1 percent of comparable national totals. Compared to the region's overall 3.4, 3.6, and 4.0 percent shares of U.S. earned income in the three years, respectively, resource industries clearly remain disproportionately significant to the Northwest. They have not been the engines of local growth; rather, expansion in other areas of the economy has diminished the resource industry share of total regional wages and salaries.

Diversification of the regional economy over the past several decades has occurred in a number of areas. Within the manufacturing sector, for example, wages and salaries earned in the metals, machinery, instruments, and nonaerospace equipment sectors rose from 3.5 percent of total regional wages in 1959 to 5.9 percent in 1979. Yet relative to the nation, the Pacific Northwest still shows far less than a proportionate share. Nonetheless, in some particular segments such as instruments and nonelectrical machinery, the Pacific Northwest has made especially rapid advances. This expansion reflects tailoring of product lines by long-established firms to new marketing opportunities, both domestic and abroad; establishment of branch

operations in the region by firms headquartered elsewhere; and start-up in the Northwest of a large number of new companies which have experienced quick success and rapid growth.

Service with a Smile

Concurrent with the shift in mix of goods-producing industries, the Pacific Northwest also has experienced a shift to more service-related enterprises. This is not just a local phenomenon. Nationwide, rising per capita incomes, changing lifestyles, and more sophisticated and automated business procedures have contributed to a greater demand for services ranging from restaurant meals to computer repairs.

Comparing the region to the nation, again for the years 1959, 1969, and 1979, Pacific Northwest earnings in all broad private service industries grew more rapidly than their national counterparts. Measured against the 4 percent regional share for total earnings, the Pacific Northwest by 1979 evidenced some concentration in transportation, communications, and utilities and also in retail/wholesale trade. In contrast, 1979 earnings shares in personal and business services and in finance, insurance, and real estate were slightly on the low side; growth over the preceding two decades was very rapid, however, and these regional service shares are fast closing the gap. In the public sector, Northwest earnings testify to a continuing above-average presence of the federal government; by 1979, state and local government also accounted for proportionately more than the overall size of the regional economy would suggest.

Service sectors which have achieved greater-than-expected (i.e., above roughly 4 percent) shares of corresponding U.S. earnings totals suggest the Northwest is meeting some demand originating from outside the area. One notable example is the transshipment of cargo, which involves warehousing, trucking, and other services. State and local government moved above roughly proportional status only recently, largely due to activities related to Alaskan reinvestment of petroleum tax revenues. On the other hand, lower-than-average shares may indicate regional market demands remain too small to support even local provision of some services. Rapid growth in personal, business, and financial services, however, suggests the region may have attained some new market-size threshold encouraging local expansion of accounting, legal, architectural, brokerage, and related firms. ■

OLD STANDBYS

Since the days of first settlement, the Pacific Northwest economy has benefited from its rich endowment of natural resources. Related industries — agriculture, food processing, forest products, fishing, and mining — remain important economic underpinnings, though over the postwar years they have grown more slowly than the overall regional economy. In the period from 1959 to 1979, wage and salary disbursements in these resource industries grew at a 6.8 percent annual rate, as opposed to 8.0 percent for all manufacturing and 8.9 percent for total Northwest wages and salaries. Correspondingly, the resource-industry share of total regional wages and salaries dropped from 22 percent in 1959 to 18 percent in 1969 and further to 15 percent in 1979. Nonetheless, those shares represent only the direct employment benefits of resource industries; some industries, such as agriculture, have become more capital intensive, thus generating more output per employee and expanding secondary employment and income within the region. Furthermore, after adjustment for inflation, resource-based disbursements still were roughly two-thirds higher in 1979 than twenty years prior. Clearly, resource-based industries have not been standing still.

Of the Soil and Climate

Among regional resource industries, forest products looms largest. In 1959, almost half of all resource-based wages and salaries, and roughly 10 percent of total, were generated by forest products industries. By 1979, forest products still represented a comparable share of resource-related payments. Looking forward, the regional pulp and paper industry is expected to remain a fairly stable component of the economic base, with continued investment to enhance productivity and probably to increase capacity for converted paper products sold in regional markets. For the lumber and plywood sectors, the outlook is clouded by concerns relating to timber supply and the regionalization of wood products markets nationwide.

Especially as relates to available supply, some concern is warranted. The Northwest states contain some 51 percent of the nation's softwood growing stock and 58 percent of its softwood sawtimber, but roughly 60 percent of all Northwest commercial timberland is federally owned or managed; only 32 percent is in private hands. By contrast, over 90 percent of southeastern United States commercial timberland is privately owned. The significance lies in differing management policies: i.e., the public sector must allocate timberlands among competing end uses, and large amounts of old-growth acreage have been diverted out of commercial usage in the Northwest. Moreover, overly-rapid harvest of private Northwest timberland has created a temporary constraint from that source, and the colder Northwest climate makes all timberlands less productive vis-a-vis the southern states.

Small mills, in particular, face further problems. Expectations in the late Seventies of Northwest supply constraints, continued high housing demand, and surging finished product prices led to aggressive bidding on federal timber by small operators that rely heavily on publicly-owned supply. Many are now locked into very high cost, long-term harvest contracts that, if implemented in current or expected markets for finished products, would bring further mill closures and additional consolidation of lumber and

The Alaska oil boom has especially benefited Northwest waterborne transportation firms. In addition to normal operations, Western Towboat has begun manufacturing tugs for use in Alaskan trade. Courtesy of Western Towboat Co., Inc.

plywood mills. In addition to supply considerations, the changing product mix of the entire wood products industry and the associated capital requirements may serve to accelerate Northwest consolidation. New products such as waferboard, oriented-strand board, and other particle boards have been making substantial inroads into plywood's traditional markets, and production technology such as computer and laser-aided sawing devices are making the lumber industry more capital intensive as well. Small mills may lack financial resources for required investments.

Regionalization of U.S. forest products markets in recent years has been spurred by increasing transportation costs; as a result, Pacific Northwest wood products producers remain prime suppliers to western U.S. markets but now serve only about 8 percent of the market east of the Rockies. Ironically, transportation costs are allowing British Columbia producers to garner a much larger share of that market: the protectionist U.S. Jones Act requires that intra-U.S. waterborne cargo be carried on U.S.-built and crewed vessels, while British Columbia producers may take advantage of the much lower rates offered by foreign carriers.

At the same time, low foreign-flag shipping rates are part of the reason why Northwest producers have been expanding their export markets over the past twenty years. In Washington State, for example, 30 percent of all timber cut, 10 percent of lumber sawed, and 4 percent of plywood produced is for export markets, up from almost none 25 years ago. But if offshore demand for Northwest wood is to be filled with more finished products, a major marketing effort will be required. Already, a few Northwest mills are tailoring their products to foreign needs; e.g., cutting to metric specifications and learning foreign grading standards and finishing preferences. Further penetrating diverse markets will be challenging and require unprecedented flexibility.

Agriculture, like other resource industries, has been directly contributing a decreasing share of Northwest personal income. In 1959, farms accounted for almost 8 percent of Northwest employee and farm proprietor income, but the 1979 share was less by roughly half. At the same time, total real farm income increased by 13 percent, and Northwest farm output increased dramatically (e.g., a conservative Washington output index increased by two-thirds during that period). Rising farm productivity has allowed a decreasing proportion of the population to satisfy domestic foodstuff demand, while simultaneously developing large foreign markets.

Future gains in farm output will reflect productivity increases and acreage expansion. From 1966 to 1980, irrigated acreage in Northwest states increased by an average 95,000 acres a year, or a compound average rate of 1.23 percent annually. The reason for this steady growth was the development of efficient sprinkler technology which overcame the topographical limitations of gravity flow. The Bonneville Power Administration expects total irrigated acreage in the Northwest to expand only 0.8 percent annually from 1980 to 2000, with all of the gains in sprinkled acreage. Competing uses for water and uncertainty concerning the magnitude of future electricity rate increases will be constraints.

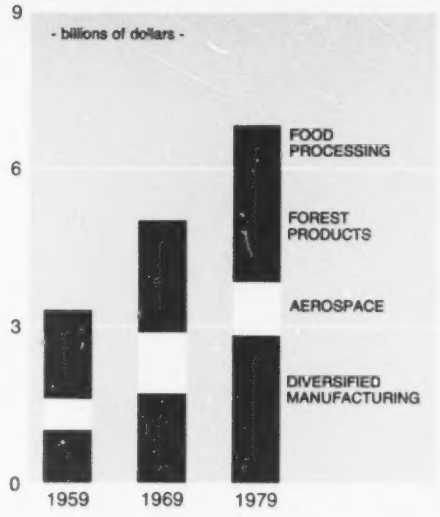
Further advances in technology and genetic engineering should continue to improve per-acre output. The challenge facing Northwest farmers, however, will lie in developing markets for any additional production. Export markets are the Northwest's best prospect. Some regional crops, such as wheat, hops, peas, and lentils have long depended on offshore markets; in recent (and probably future) years, other crops such as potatoes, apples, and onions have required alternative outlets. Apples in particular are beginning to out produce domestic markets, and badly need more offshore demand. Like forest products producers, Northwest farmers and processors will have to exhibit both aggressiveness and flexibility.

Of the Earth and Sea

Pacific Northwest mineral extraction is a traditional resource industry which has been growing overall due to Alaskan oil production. In 1980, the value of total Northwest mineral production was $11.7 billion, $9.4 billion (80 percent) of which was attributable to Alaskan oil and gas output. Mining wage and salary disbursements were roughly 1 percent of Northwest wages and salaries in 1959, 1969, and 1979. Hidden in this fairly stable share is a large shift within the Northwest: Idaho and Montana together comprised over two-thirds of total disbursements in 1959, one-half in 1969, and only 41 percent in 1979. Meanwhile, Alaska absorbed the entire shift, going from 12 percent to over 40 percent during that time period, while Washington and Oregon's cement, rock, sand, and gravel-intensive industries remained fairly stable as a proportion of Northwest mining disbursements.

The current recession may have served to only accelerate the decline of Idaho and Montana's copper, silver, lead, and zinc industries. The 1982 closure of Idaho's Bunker Hill complex and Anaconda Mineral's decision to flood Butte's Berkeley Pit represent the many adverse conditions the industry now faces: i.e., declining ore grades, aging equipment, stricter environmental standards, and competing supplies from dollar-hungry developing nations.

MANUFACTURING PAYROLLS IN CONSTANT DOLLARS
Pacific Northwest States
1959, 1969, and 1979



Source: U.S. Department of Commerce; deflated by U.S. Personal Consumption Deflator.

Forest products contributed 38 percent of the Pacific Northwest constant dollar manufacturing payrolls in 1959; with food processing added, 50 percent of payrolls were resource-industry based. By 1979, the faster-growing diversified industry group accounted for 41 percent of payrolls — larger than forest products and nearly equal to both resource-based industries combined. Aerospace payrolls, important only in Washington State, reached a high 23 percent contribution in 1969.

As a result, the outlook for Northwest mining activity is varied. For the nonfuels component, only sharply higher prices will bring substantial relief to much of Montana and Idaho's traditional metals facilities. There are others, however, that remain competitive. Moreover, successful exploration continues for precious metals and higher-value ores such as molybdenum and titanium. Southeast Alaska has a huge molybdenum deposit at Quartz Hill which is expected to begin producing by 1988, and Alaska, in general, is known to have other substantial nonfuel reserves. In the fuels component, Alaska still has considerable undeveloped oil and coal reserves that await higher energy prices, while completion of the U.S. portions of the overland gas pipeline to the "Lower 48" awaits lower interest rates and deregulation.

Salmon, harvested in the Northwest by local Indian tribes long before the arrival of settlers, has always been the dominant Northwest fishery. It is likely to remain so if international and intraregional disputes concerning the most equitable harvest allocation can be resolved. The other fishery of traditional importance has been crab, but that resource is currently in a pronounced cyclical decline. Groundfish, on the other hand, offer a large prospective fishery, but the potential is only beginning to be tapped. For all fisheries combined, the Northwest catch rose by 157 percent between 1960 and 1980 — a 4.8 percent average annual increase. The bulk of the gain was in salmon and crab.

In terms of industry structure, the Seventies were eventful. Included were the phasing out of Oregon's salmon packing industry, the increase in the importance of fresh and fresh/frozen markets, the Boldt decision — affecting Indian salmon fishing rights, and (most importantly) the extension of the U.S. fishery conservation zone from 12 miles offshore to 200. The U.S. industry response to the latter event is still taking place; it evoked an initial flurry of high-value U.S. crab harvest, but exploitation of groundfish has been slower due to the high start-up cost of at-sea processors. For this reason, most groundfish activity currently consists of U.S.-foreign joint ventures, although expectations of greater U.S. hegemony are high. A study commissioned by the West Coast Fisheries Development Foundation projects that U.S. harvest of groundfish off the West Coast and Alaska will jump almost tenfold by 1991 partially displacing the large volume of groundfish the U.S. currently imports. The lion's share of this increase is expected to come from Alaskan waters.

Partially related to the Northwest's fishing industry is its ship and boat construction and repair capability. Although most fish landings occur in Alaska, the bulk of the vessel construction, repair, outfitting, and supplying takes place in Washington and Oregon. As a result, construction and repair of fishing craft has become so important in Washington and Oregon that some yards have begun exporting state-of-the-art vessels to foreign countries. In addition, the U.S. military is a large contributor to Northwest shipbuilding: the three largest Northwest yards are heavily dependent on Navy and Coast Guard work.

The long-term outlook for Northwest shipbuilding is good. Stepped-up defense procurement will be a plus, and diversification by some yards into at-sea waste incinerators, oil skimmers, and support vessels for the Alaskan oil industry speaks well for the future. Several yards have also invested heavily in repair capabilities in anticipation of future increases in Northwest waterborne trade traffic. For the near term, the recession and a change in federal maritime policy is making repair work highly competitive; fishing-related new construction is also rather scarce. Hopefully, the combination of Alaskan-related demand, fishing-related repair and maintenance, and other miscellaneous needs will help bridge the gap. ■

EVOLVING DIVERSITY

The economy of the Pacific Northwest has gradually moved toward greater diversification throughout the entire postwar era, but the trend has been particularly pronounced over the past ten to twenty years. Part of this development has been keyed to the traditional resource base, such as the manufacture of machinery for the forest products and food processing industries. Beyond that, however, the shift has reflected a broadening thrust into industrial activities quite unrelated to regional natural resources. Specifically, this has involved the manufacture of such items as electrical machinery, electronic equipment, professional instruments, chemicals and petroleum

BASIC INDICATORS OF WASHINGTON BUSINESS AND INDUSTRIAL ACTIVITY

All indexes based on 1967 average = 100

YEAR	POPULATION & INCOME			CONSTRUCTION ACTIVITY		GROSS BUSINESS INCOME			RETAIL SALES	
	POPULATION[A] Washington	PERSONAL INCOME[2] Washington		Washington		Washington			Total Taxable Sales Washington	
		Total Millions of Dollars	Per Capita Dollars	Total Construction Contracts[3] Millions of Dollars	Adjusted Dollars Index[B]	Total	Manufacturing Millions of Dollars	Actual Millions of Dollars[D]	Index	Adjusted Index[E]
1935-39 Avg.	1,675	952	567	NA	10.6	NA	NA	575.3	7.4	19.8
1940-44 Avg.	1,919	2,220	1,132	NA	18.9	NA	NA	1,166.8	15.0	33.3
1945-49 Avg.	2,263	3,381	1,494	NA	30.2	NA	NA	2,381.7	30.5	48.3
1950-54 Avg.	2,448	4,688	1,913	NA	42.8	NA	NA	3,374.9	43.3	57.3
1955-59 Avg.	2,718	5,956	2,189	NA	52.9	NA	NA	4,299.5	55.1	66.3
1960-64 Avg.	2,919	7,504	2,569	NA	59.7	NA	NA	5,171.3	66.3	73.0
1965-69 Avg.	3,162	11,084	3,490	1,226.5	79.4	28,173.9[C]	9,112.3[C]	7,752.0	99.4	98.0
1970	3,413	13,827	4,051	1,478.2	86.0	31,372.2	10,023.3	9,070.0	116.3	102.2
1971	3,433	14,463	4,213	1,155.5	66.7	33,140.0	10,059.1	9,339.5	119.7	100.8
1972	3,423	15,598	4,557	1,556.6	85.2	36,290.7	10,472.0	10,107.5	129.6	105.4
1973	3,443	17,736	5,151	1,633.2	81.9	44,217.1	13,277.8	11,448.3	146.8	112.9
1974	3,503	19,964	5,699	2,186.8	79.4	52,674.0	15,093.7	12,865.1	164.9	115.2
1975	3,563	22,484	6,310	2,019.3	82.5	58,053.2	15,586.9	14,493.3	185.8	120.6
1976	3,623	25,175	6,949	3,480.2	100.1	65,540.3	17,550.7	16,693.2	214.0	132.1
1977	3,693	28,033	7,591	2,976.2	119.1	73,664.9	19,453.2	19,336.5	247.9	144.7
1978	3,793	32,751	8,635	4,426.8	145.1	88,848.2	23,593.2	22,225.8	285.0	155.4
1979	3,926	37,683	9,598	5,695.6	143.7	106,102.9	28,889.4	23,879.3	306.1	153.1
1980	4,132	42,568	10,306	4,795.1	101.4	117,374.2	32,654.6	24,632.9	315.8	143.3
1981	4,220	47,546	11,267	3,587.9	84.7	123,604.9	31,941.9	25,975.9	333.0	139.2
1982	4,245	49,390	11,635	3,438.0	72.4	121,227.2	29,782.2	27,836.8	356.9	140.8

LABOR FORCE DATA

YEAR	Civilian Labor Force	Unemployment	Unemployment As Percent of Labor Force	Total Employment	Total Wage and Salary Workers[K]	Manufacturing Employment[K]	Aerospace Employment[K]	Forest Products Employment	Other Manufacturing Employment	Non-Manufacturing Employment[K]
	Thousands of Workers					Thousands of Workers				
1935-39 Avg.	NA	NA	NA	NA	408.5[L]	113.3[L]	3.5[I]	60.0[L]	49.8[L]	295.2[L]
1940-44 Avg.	NA	NA	NA	NA	634.7	222.4	27.3	70.9	124.2	412.2
1945-49 Avg.	937.1[I]	59.4[I]	6.3[I]	864.4[I]	676.7	187.6	19.1	65.8	102.7	489.2
1950-54 Avg.	985.9	46.7	4.7	924.3	730.9	192.7	29.5	69.9	93.3	538.2
1955-59 Avg.	1,057.3	58.5	5.5	989.7	791.7	215.9	55.8	64.5	95.6	575.8
1960-64 Avg.	1,117.9	70.2	6.3	1,047.1	838.7	218.8	62.0	62.3	94.5	619.9
1965-69 Avg.	1,303.0[J]	68.3[J]	5.2[J]	1,203.0[J]	1,030.2	266.7	87.3	65.7	113.6	763.5
1970	1,414.0	130.0	9.2	1,284.0	1,080.0	239.4	61.5	62.0	115.9	840.6
1971	1,394.0	141.0	10.1	1,253.0	1,065.2	214.7	40.5	61.5	112.7	850.5
1972	1,425.0	136.0	9.5	1,289.0	1,100.1	224.1	41.1	67.1	115.9	876.0
1973	1,470.0	116.0	7.9	1,354.0	1,152.3	224.2	50.1	69.3	124.8	908.1
1974	1,512.0	108.0	7.1	1,404.0	1,198.0	253.6	54.1	68.5	131.0	945.3
1975	1,538.0	147.0	9.6	1,391.0	1,225.7	244.0	50.4	63.6	130.0	981.7
1976	1,622.0	140.0	8.7	1,482.0	1,283.1	247.4	45.0	68.4	134.0	1,035.7
1977	1,692.0	148.0	8.7	1,544.0	1,367.0	260.0	46.1	71.6	142.3	1,107.0
1978	1,809.0	124.0	6.9	1,685.0	1,485.6	284.7	59.8	69.1	155.8	1,200.9
1979	1,937.0	131.0	6.8	1,806.0	1,581.2	309.6	72.6	73.1	163.9	1,271.6
1980	1,985.0	157.0	7.9	1,828.0	1,608.3	309.7	79.6	64.6	164.5	1,299.6
1981	1,989.0	189.0	9.5	1,800.0	1,612.0	303.0	79.0	61.6	162.4	1,308.7
1982	2,012.0	244.0	12.1	1,768.0	1,569.2	289.9	75.0	55.2	159.7	1,279.3

FOREST PRODUCTS

AGRICULTURAL PRODUCTION — WASHINGTON[12 13]

YEAR	LUMBER PRODUCTION[10] Washington[Q]	Oregon[Q]	PULP[1] PRODUCTION Washington	PLYWOOD[11] PRODUCTION Northwest[R]	WHEAT	MILK	BEEF CATTLE[S]	APPLES	POTATOES	HAY	BARLEY
	Millions of Board Feet		Thousands of Tons	Millions of Square Feet	Thousands of Bushels	Millions of Pounds	Thousands of Tons	Thousands of Tons	Thousands of cwt.	Thousands of Tons	Thousands of Bushels
1935-39 Avg.	4,086	4,026	963	711	48,142	1,920	165,143	662	4,731	1,702	2,356
1940-44 Avg.	4,719	6,150	1,407	1,524	54,959	1,994	212,868	645	4,883	1,832	8,646
1945-49 Avg.	3,497	6,692	1,503	1,585	68,728	1,829	199,991	716	6,543	1,579	3,680
1950-54 Avg.	3,506	8,554	2,107	2,901	76,524	1,733	262,380	575	6,859	1,503	8,392
1955-59 Avg.	3,225	8,041	2,587	5,292	67,024	1,842	338,125	582	10,074	1,741	24,975
1960-64 Avg.	3,444	7,408	3,094	8,021	69,184	1,925	376,508	553	11,621	1,910	26,090
1965-69 Avg.	3,429	7,257	3,741	9,582	100,750	1,956	405,212	673	23,195	2,291	14,230
1970	3,189	6,680	3,848	9,132	97,075	2,091	404,578	697	33,590	2,335	19,458
1971	3,498	7,413	3,308	9,955	113,210	2,230	423,225	600	30,110	2,438	27,840
1972	3,749	7,943	3,635	10,548	123,328	2,307	427,420	697	31,365	2,467	14,190
1973	3,642	8,194	3,674	10,498	89,200	2,338	437,030	930	35,260	2,215	14,235
1974	3,222	7,007	3,583	8,697	122,220	2,312	445,340	903	41,160	2,577	13,950
1975	3,104	6,342	3,127	8,574	145,140	2,322	416,780	1,100	48,300	2,391	21,200
1976	3,661	7,335	3,399	9,310	144,050	2,428	428,870	1,154	55,800	2,448	21,060
1977	4,031	7,509	3,582	10,122	101,305	2,549	399,525	1,042	50,600	2,432	9,450
1978	4,150	7,416	2,903	10,311	128,160	2,675	429,180	1,074	50,505	2,638	23,180
1979	3,851	7,312	3,313	9,656	118,000	2,817	458,670	1,310	48,450	2,494	17,010
1980	3,161	5,784	3,585	7,512	160,220	2,942	491,370	1,502	43,935	2,625	32,250
1981	3,243	5,115	3,494	6,943	168,350	3,017	513,130	1,380	52,920	2,542	44,080
1982	3,014	4,750	NA	6,280	138,880	3,222	563,830	1,375	52,800	2,889	49,410

FOOTNOTES

A July 1 estimates, except for April 1 counts in decennial census years.

B Measures both residential and nonresidential building construction contracts. Index measures level of activity relative to base year (1967 = 100) deflated by Building Construction Deflator (see H).

C 1968-1969 average.

D Year to year comparisons of Taxable Retail Sales have been distorted by changes in the retail sales tax base; most importantly, the sales tax on non-restaurant foodstuffs was removed in July 1978 and then reapplied on May 1982.

E Adjusted for inflation using Personal Consumption Deflator (see G).

F Fixed-weight deflator, Seattle-Everett index for All Urban Consumers.

G Implicit deflator, personal consumption component of Gross National Product, U.S. average.

H Implicit deflator, residential and nonresidential structure component of Gross National Product, U.S. average.

I 1947-1949 average.

J Series not comparable prior to 1967. Average reflects 1967-1969 series based on place of residence.

K Originally published data adjusted to reflect Bureau of Labor Statistics benchmark revisions for the years 1939 through 1957; data also adjusted insofar as possible to reflect changes resulting from reclassification of industries, but no adjustment made for January 1971 shift of 1,900 Boeing Computer Services workers from manufacturing to nonmanufacturing and January 1982 transfer of approximately 4,100 BCS workers back into manufacturing.

L 1938-1939 average.

M Figures commencing with 1959 exclude Montana pack, amounting to less than 1 percent of the Pacific Northwest totals.

BASIC INDICATORS OF WASHINGTON BUSINESS AND INDUSTRIAL ACTIVITY

All indexes based on 1967 average = 100

YEAR	FOREIGN TRADE[1] Washington Customs District			PRICE INDEXES ADJUSTMENT FACTORS[2,5]			ELECTRIC ENERGY PRODUCTION[6]
	Exports	Imports	Total Exports and Imports	Seattle – Everett Consumer Price Index F	Personal Consumption Deflator G	Building Deflator H	
	Millions of Dollars						Millions of kwh
1935-39 Avg.	70.3	34.9	105.2	39.6	37.4	33.0	3,376
1940-44 Avg.	187.1	69.4	256.5	48.7	45.1	40.8	6,826
1945-49 Avg.	183.5	108.4	291.9	62.6	62.8	62.6	11,783
1950-54 Avg.	233.1	215.3	448.4	76.2	75.4	80.0	20,541
1955-59 Avg.	391.9	342.7	734.6	82.9	83.1	88.5	27,268
1960-64 Avg.	559.9	451.1	1,011.0	90.7	90.8	90.3	40,076
1965-69 Avg.	1,123.4	797.9	1,921.3	101.0	101.1	101.2	60,429
1970	1,904.8	1,269.1	3,173.9	114.0	113.8	120.6	71,699
1971	2,526.1	1,567.3	4,093.4	116.3	118.7	128.7	73,979
1972	2,438.9	2,005.7	4,444.6	119.7	123.0	136.2	78,656
1973	3,445.5	2,453.0	5,898.5	127.4	130.0	147.7	78,566
1974	4,279.9	4,075.8	8,355.7	141.5	143.2	170.6	90,404
1975	4,199.0	3,972.4	8,171.4	155.8	154.1	188.7	93,560
1976	4,931.2	5,006.1	9,937.3	164.5	162.0	196.9	102,820
1977	4,762.1	5,783.7	10,545.8	177.6	171.3	214.9	78,931
1978	6,399.5	6,678.2	13,077.7	194.8	183.4	240.7	99,139
1979	9,631.5	7,967.7	17,599.2	216.3	199.9	272.9	90,834
1980	11,986.3	9,177.1	21,163.4	252.1	220.4	304.4	92,325
1981	12,270.7	9,951.0	22,221.7	279.8	239.2	329.4	102,649
1982	8,889.9	9,267.1	18,157.0	297.9	253.4	343.2	99,684

WASHINGTON MANUFACTURING GROSS INCOME[4]

Twelve Months Ending September 30, 1982

	Millions of Dollars	Percent of Total
FOOD PRODUCTS	$ 4,721.0	15.6
Meat products	1,001.6	3.3
Canning and preserving	960.0	3.2
Beverages	761.8	2.5
Dairy products	666.2	2.2
Grain mill and bakery	558.5	1.8
Other	772.9	2.6
FOREST PRODUCTS	$ 5,931.7	19.5
Lumber and wood	3,360.9	11.0
Paper and allied	2,473.2	8.2
Furniture and fixtures	97.6	0.3
AEROSPACE	$ 7,143.8	23.5
OTHER	$12,545.4	41.4
Petroleum refining	2,478.9	8.2
Primary metals	2,303.7	7.6
Machinery	1,951.1	6.4
Shipbuilding	973.2	3.2
Printing and publishing	955.6	3.1
Chemicals and allied	937.0	3.1
Fabricated metals	783.5	2.6
Stone, clay, and glass	595.8	2.0
Apparel and textiles	441.7	1.5
Miscellaneous	1,124.9	3.7
TOTAL	$30,341.9	100.0

FOOD PRODUCTS

YEAR	CANNED FOODS[8] Pacific Northwest M		FROZEN FOODS[8] Washington - Oregon		CANNED SALMON[9]			WHEAT FLOUR PRODUCTION[10]
	Fruits and Berries M	Vegetables	Fruits and Berries	Vegetables O	Alaska	Washington	Oregon	Washington
	Thousands of Standard Cases		Millions of Pounds			Thousands of Cases		Thousands of Sacks
1935-39 Avg.	6,542	5,558	53.2	17.7	6,459	340	339	5,289
1940-44 Avg.	7,039	10,587	95.6	58.5	5,460	262	277	10,781
1945-49 Avg.	7,378	13,102	134.5	138.4	4,203	643	235	12,006
1950-54 Avg.	7,149	16,625	132.5	252.3	3,304	828	142	9,364
1955-59 Avg.	7,699	19,741	165.6	386.6	2,519	587	128	9,628
1960-64 Avg.	7,017	21,085	180.1	791.4	3,091	310	75	10,058
1965-69 Avg.	7,645	26,433	184.4	1,936.5	2,834	270	88	7,852
1970	7,455	23,417	181.2	2,536.3	3,565	189	58	7,808
1971	8,422	24,749	181.6	2,624.5	2,899	463	151	7,227
1972	6,437	23,393	135.5	2,764.4	1,705	190	35	7,609
1973	8,859	27,023	119.3	3,096.9	1,209	305	32	6,667
1974	9,884	32,035	110.4	3,431.0	1,343	578	56	6,781
1975	8,456	27,221	130.7	3,422.2	1,384	162	9	5,909
1976	9,256	27,826	176.8	3,766.6	2,470	136	6	6,833
1977	8,875	22,416	158.5	3,979.1	2,595	231	2	7,067
1978	7,786	28,248	111.6	4,214.5	2,922	11	2	7,413
1979	9,727	31,821	115.7	4,285.1	3,049	144	P	7,740
1980	9,935	30,760	152.8	3,894.4	4,175	26	P	7,737
1981	9,125	25,112	154.9	4,264.6	4,432	203	0	7,233
1982	7,345	23,686	174.6	4,611.2	2,343	97	0	7,018

VALUE OF FARM PRODUCTS[2] – 1982

	Millions of Dollars	Percent of Total
FIELD CROPS	$1,358.9	44.5
Wheat	555.5	18.2
Hay	218.1	7.1
Potatoes	187.4	6.1
Barley	101.3	3.3
Hops	93.1	3.1
Grain corn	82.7	2.7
Silage corn	30.4	1.0
Other	90.4	3.0
LIVESTOCK AND DAIRY	$ 906.5	29.7
Milk	440.0	14.4
Cattle and calves	348.0	11.4
Eggs	60.3	2.0
Other	58.2	1.9
FRUIT, NUTS, AND BERRIES	$ 467.5	15.3
Apples	297.4	9.7
Pears	60.3	2.0
Sweet cherries	37.9	1.2
Grapes	31.3	1.0
Other	40.6	1.3
SPECIALITY	$ 170.5	5.6
VEGETABLES	$ 153.9	5.0
Sweet corn	36.4	1.2
Green peas	31.3	1.0
Asparagus	29.7	1.0
Other	56.5	1.9
TOTAL	$3,057.2	100.0

AGRICULTURAL PRODUCTION – WASHINGTON[12,13]

YEAR	HOPS	EGGS	PEARS	SWEET CHERRIES	GRAIN CORN	FARM INCOME Value of Production[T]	FARM INCOME Cash Receipts[U]
	Thousands of Pounds	Millions of Eggs	Thousands of Tons	Thousands of Tons	Thousands of Bushels	Millions of Dollars	
1935-39 Avg.	9,172	833	161	15.6	1,140	NA	145.7
1940-44 Avg.	13,981	873	170	24.3	1,064	355.6	306.7
1945-49 Avg.	20,830	740	183	29.6	1,023	562.1	519.2
1950-54 Avg.	24,493	764	131	17.9	1,572	610.5	523.3
1955-59 Avg.	25,315	937	120	17.7	3,784	586.7	528.9
1960-64 Avg.	27,833	1,030	114	18.9	2,925	648.3	595.4
1965-69 Avg.	32,483	1,048	128	16.0	2,189	803.9	751.3
1970	31,416	1,079	155	28.5	4,558	892.4	794.9
1971	32,697	1,021	165	33.9	6,222	954.6	818.2
1972	34,752	1,033	153	21.2	5,184	1,177.7	1,070.4
1973	36,668	1,058	187	45.5	5,618	1,823.2	1,600.4
1974	38,979	1,085	213	45.0	2,970	2,005.7	1,792.5
1975	37,701	1,084	219	43.1	3,536	1,993.5	1,828.1
1976	41,160	1,058	235	54.3	4,708	1,931.9	1,836.6
1977	37,904	1,063	224	47.0	7,616	1,886.0	1,763.8
1978	40,044	1,121	246	59.3	7,410	2,254.5	2,159.5
1979	40,140	1,172	246	67.6	11,931	2,524.5	2,158.1
1980	55,952	1,295	256	48.3	11,000	2,955.4	2,719.3
1981	59,470	1,332	275	44.4	14,250	3,095.1[V]	2,905.0[V]
1982	58,167	1,334	266	50.8	27,550	3,057.2[V]	2,833.5[V]

N Figures prior to 1948 adjusted to new basis.

NA Not available.

O Starting in 1963, data include production in Idaho, mainly potato products.

P Less than one thousand.

Q Figures commencing with 1960 exclude small amounts of hardwoods produced in Inland Region.

R Softwood plywood; Washington and Oregon; includes small amounts produced in Montana and Idaho from 1952 through 1961.

S Includes calves.

T Excludes value of crops grown but not harvested; derived from tonnage produced and season average price for each product.

U Cash income from marketings; exclude government payments, value of produce consumed on farms, and gross rental value of farm dwellings.

V Beginning in 1982, cash receipts and value of production figures exclude seed crops, cucumbers, cabbage, honey, and beeswax. Combined value of excluded crops was 1.3 percent of total in 1981.

1 Washington State Department of Revenue

2 Washington Crop and Livestock Reporting Service

SOURCES

1. Bureau of the Census, U.S. Department of Commerce.
2. Bureau of Economic Analysis, U.S. Department of Commerce.
3. F.W. Dodge Division, McGraw-Hill Information Systems Co.
4. Department of Revenue, State of Washington.
5. Bureau of Labor Statistics, U.S. Department of Labor.
6. U.S. Department of Energy.
7. Employment Security Department, State of Washington.
8. Northwest Food Processors Association.
9. Pacific Packers Report.
10. Western Wood Products Association.
11. American Plywood Association.
12. Washington Crop and Livestock Reporting Service.
13. Economic Research Service, U.S. Department of Agriculture.

products, primary and fabricated metals, and transportation equipment.

From 1959 to 1979, the proportion of Pacific Northwest manufacturing wages and salaries derived from other than food and fiber production shifted from less than 49 percent to over 56 percent of the total. Most of the new industrial firms and certainly the bulk of the new employment opportunities in manufacturing have come from these activities. The development of "other industry" has given the region a broader industrial base in terms of production requirements and markets served, generated greater and more varied industrial output, and, at the same time, provided an element of cushion to cyclical swings in the regional economy overall. Unquestionably, the pattern toward increasing diversification will continue, given the draw of the Pacific Northwest and the drive nationally to develop competitive technology in the years ahead.

Of Energy and Aluminum

One of the earliest large diversification entries for the Pacific Northwest was the production of primary aluminum. With completion of large-scale hydroelectric dams on the Columbia River system in the Thirties, the region immediately possessed huge amounts of excess power available at extremely low cost. The aluminum industry, as a heavy electricity user, was an obvious customer. Initial plants were located in the region as the industry expanded to meet World War II demands; additional facilities were added in subsequent decades. Low electroprocessing costs tended to offset the high transportation costs to major market centers from operations in the Pacific Northwest, and over time the region has come to house one-third of the nation's primary aluminum capacity. The employment represents roughly 5 percent of total manufacturing.

Logically, as the region has continued to grow, demands upon the energy resource have intensified. Additional load requirements in the Fifties, for example, were running in the neighborhood of 7 to 8 percent a year, and by the Seventies, were still

WASHINGTON STATE 1982 HIGHLIGHTS

Population

Reflecting a shift to net migration out of the state, Washington's resident population inched up only 0.6 percent over the year to July 1, 1982. The slight gain follows an increase of 1.7 percent the prior year and an annual growth rate of slightly more than 1.9 percent for the decade of the Seventies. By comparison, the nation's population increased at a 1.0 percent rate during the last two years.

Labor Force

The civilian labor force pushed above 2 million for the first time, up over 1 percent, while total employment fell almost 2 percent. The unemployment rate surged to 12 percent, well above the prior 10 percent peak of 1971.

Nonfarm Employment

Virtually all segments of the Washington economy trimmed workforces in 1982. On an annual average basis, nonfarm payroll employment dropped 3 percent, reflecting both a sharp retrenchment in the final months of 1981 and a further more gradual decline during the twelve months ending December 1982. At 1.57 million, average payroll employment last year was at the lowest level since 1973.

Personal Income

Total personal income rose a very slight 4 percent. After adjustments for population growth and a 6 percent rise in prices for consumer goods and services, real per capita income was down roughly 2.5 percent from 1981 and down more than 4 percent from the peak level reached in 1979.

Agriculture and Food Products

Cash receipts from farm marketings during 1982 were off 2.5 percent from the 1981 tally, while the estimated value of farm production dipped 1.2 percent. Although the value of livestock products increased, relatively low grain prices and a substantial decline in the wheat harvest depressed overall results. Food processing employment was essentially level with the prior year but down 4 percent from its peak in 1979.

Forest Products

Wood products hit rock bottom in the fall of 1982 before moving into recovery as interest rates came down. For the full year, lumber output slid 7 percent to 3 billion board feet, down more than 27 percent from a 1978 high. Plywood slumped even more; at 1.2 billion square feet, production was off 16 percent from 1981 and 44 percent from 1978. Lumber and plywood sector employment was down 11 percent from 1981. Activity in the pulp and paper sector also remained sluggish, with employment down 6 percent.

Aerospace

Despite a lift from expanded government contract work, overall Boeing sales were down 8 percent in 1982 as a result of the depressed market for commercial aircraft. New orders for jet transports dropped to 110 from 224 in 1981. As production was scaled back to match reduced delivery schedules, company employment was pared by 8,900 during the year. On an annual average basis, total aerospace jobs in the state were down 5 percent.

Diversified Manufacturing

Moderate employment additions by electronics and chemicals firms offset only about half the losses sustained by other industrial sectors such as metals, and stone, clay, and glass. Overall, employment for the group was down 2 percent.

Construction

Inflation-adjusted total construction contracts sagged in 1982 to the lowest ebb since 1971. Housing units hit a cyclical bottom at about one-third the number started in the peak year 1978, while the square footage covered by permits for new nonresidential buildings was down by almost half from its peak in 1979. ■

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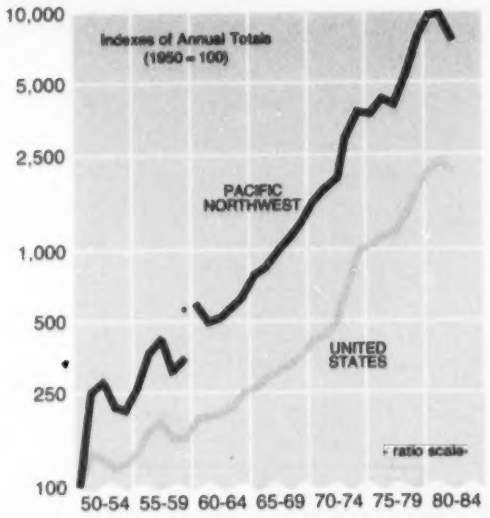
VALUE OF EXPORTS
Pacific Northwest Customs Districts and United States 1950-1982

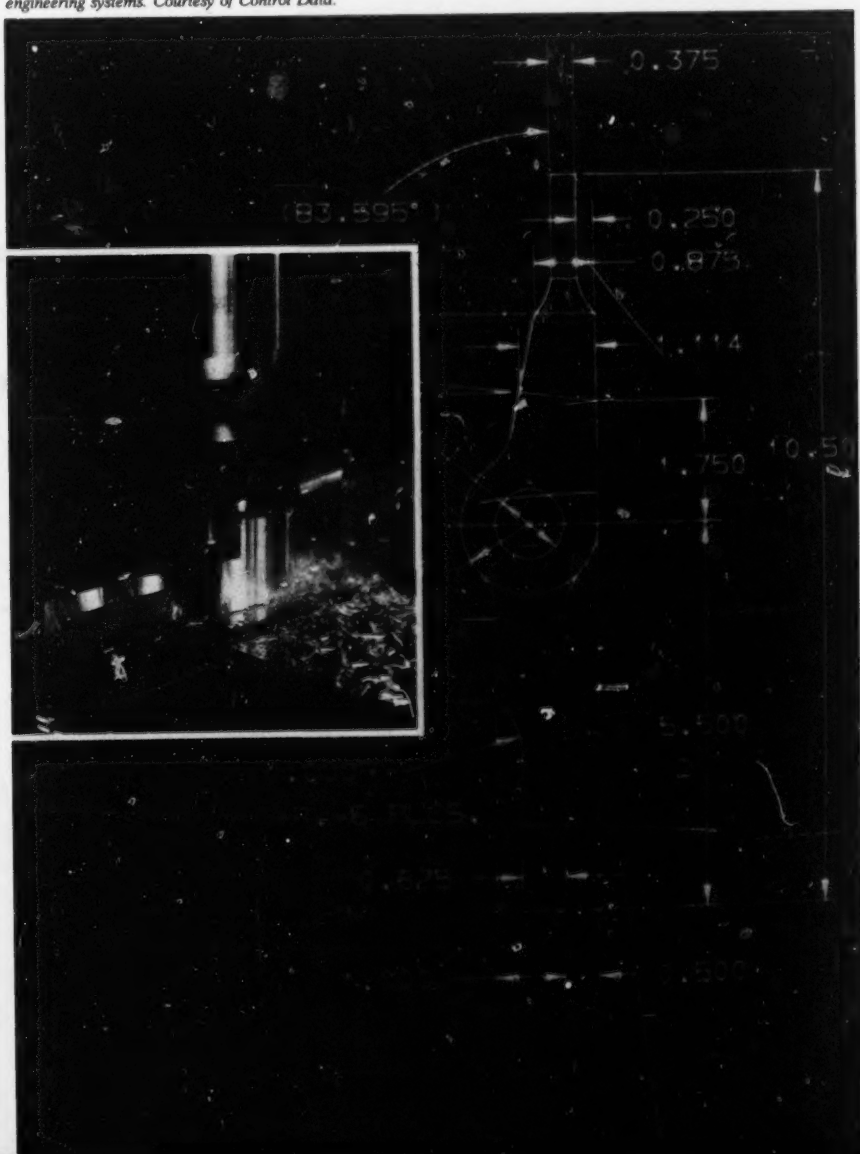


*Data prior to 1960 reflect Washington and Oregon only, and the Oregon figures reflect only Waterborne Exports (est. error approximately 1.5 percent).

Source: U.S. Bureau of the Census.

Over the twenty years to 1980, the value of exports of the U.S. increased eleven-fold; for the Pacific Northwest, sixteen-fold. As a share of the total, the region jumped from 5 percent in 1960 to 8 percent in 1980. Montana and Idaho combined constitute roughly 9 percent of the Pacific Northwest export value; Washington, 65 percent; Oregon, 20 percent; and Alaska, 5 percent. (Note: Data are for customs district handling rather than points of origin.)

Filling the demand for greater productivity, Northwest firms supply computer-aided manufacturing, design, and engineering systems. Courtesy of Control Data.



averaging 5 to 6 percent annually. As the hydro potential of the rivers became progressively harnessed, the region planned to add thermal resources to meet projected future load growth. Some such supplemental generation capacity has been built as a result. In addition, the region embarked on an ambitious program to construct five large nuclear power plants through the Washington Public Power Supply System (a consortium of 23 regional utilities). Scheduling delays, escalating construction and financing costs, design modifications to comply with changing federal regulations affecting all nuclear construction projects, and quality control problems — coupled with a recent dramatic drop in the actual and expected rate of growth in demand for electricity within the region — have led to a sequence of decisions over the past two years to terminate two plants and to defer construction on a third and very probably a fourth. The fifth plant is scheduled to be on line in 1985. Lack of resolution of issues relative to the $2.25 billion of debt on the terminated plants presently is a stumbling block to financing further work on the remaining three.

Regional power rates, meanwhile, are rising rapidly, but from a very low base relative to other areas of the nation. For most consumer classes, even significant relative increases will still maintain a competitive actual level vis-a-vis the rest of the nation. The higher costs to heavy energy users such as the aluminum industry, however, are seriously challenging their ability to remain viable in this location. One proposed new plant will not proceed, and some previously planned investments to improve energy efficiency are being put on hold. No major future additions to capacity are expected, given the constraint of energy costs, and the continued presence of the existing industry in the region hinges on future success in containing cost increases and decisions by the industry on the viability of further investments in energy-saving technology.

Adoption of a Northwest Regional Power Plan in April of 1983 signals a new approach to meeting the region's

electric energy needs. The plan emphasizes maximum flexibility in adding resources as loads grow, as well as priority to the cheapest resources available. Aggressive investment in conservation is anticipated to cover the major part of load growth over the next twenty years at a cost substantially below that of constructing new thermal generation.

Of High-Tech and Aerospace

The machinery/electronics/professional instruments sector of the Pacific Northwest economy has been an explosive force for structural change in regional manufacturing. From 1959 to 1979, the region's share of U.S. wages and salaries in these industries combined nearly tripled to 1.6 percent; for instruments alone, the 1979 share was 3.3 percent. From 1960 to 1980, area employment in the three sectors increased nearly 330 percent compared to roughly 60 percent for the U.S. as a whole. Within the individual states, the concentration is centered in Washington, Oregon, and Idaho, where the proportion of 1979 manufacturing wages and salaries has climbed to roughly 9 percent, 19 percent, and 11 percent, respectively.

Machinery includes both heavy equipment for resource industries and very sophisticated electronics devices manufactured for world markets. Products geared to resource extraction and processing are diverse — examples include log handling, mining, and commercial fishing equipment; lumber and plywood mill machinery; and sprinkler irrigation systems. Many of the larger firms have broadened their product lines beyond resource-related machinery; servicing export, as well as regional, markets is common. This demonstrated ability to develop new products and tap new markets will serve the sector well in coming decades, and the expected nationwide trend for business investment to increase as a percent of GNP is a definite plus. In the Northwest, the need for resource industries to develop new products and implement new technologies should also have positive filter-down effects.

*H*igh-tech electronics is quite a different case. Typically, this is a footloose industry not tied to particular regional resources, but one which has come on strong largely because of quality attributes of the Pacific Northwest. Major factors considered for location include a highly educated workforce available for skilled jobs, a semiskilled labor pool, available land for campus-type development adjacent to good transportation services, major universities with prestigous research functions, technical schools, and basic amenities of livability. The industry consists of both branches of national companies and very successful regional firms. Interestingly, in Washington State some of the latter originated as spinoffs by Boeing technicians or local entrepreneurs who followed through on University-developed research. The presence of a core of electronics firms in the region also fosters the start-up of others, due to the availability of subcontracts. The range of products is broad, including computer circuit boards, keyboards and peripherals; medical diagnostic and treatment equipment; electronic measuring and testing instruments; and aircraft, aerospace, and marine electronics. In its recent baseline projections for the Pacific Northwest, the Bonneville Power Administration looks to a doubling in the region's electronics-related employment over the next twenty years, reaching an impressive 12 percent of total manufacturing in the four contiguous states by the year 2000.

Quality education is a must in attracting and retaining high-technology manufacturing and software services. Certainly in Washington State the University of Washington Applied Physics Lab and Bioengineering Department stand out as major contributors. All of the states currently are wrenching under the impact of inadequate state revenue, and forced cutbacks have fallen upon all state services, including higher education. Basic research activities in particular have been affected. The need for the economy to expand in the high-tech area is obvious, and, fortunately, the cyclical recovery of the economy will allow the high-tech support services of the universities to strengthen.

*A*erospace for the Pacific Northwest essentially means Boeing — the largest commercial jet aircraft manufacturer in the world and one of the top five military contractors in the United States. Measured in terms of direct employment, aerospace constitutes roughly 2 percent of the total economy in the region, and 13 percent of manufacturing. For Washington State where the complex is located, the proportions to total are roughly double. Historically, the industry has been highly cyclical, dependent as it is upon the level of aircraft purchasing by the world's commercial carriers and the level of federal contract awards for defense procurement. At Boeing's peak in 1968, employment measured 3 percent of the Washington total and roughly 36 percent of manufacturing. In more recent years, aerospace employment has remained well below the 1968 level; this factor, plus growth in other areas of the economy, has produced a better-balanced economic base.

Since the advent of the jet age in the late Fifties, Boeing has dominated the commercial aircraft market, capturing fully 50 percent of world sales. Series models have been keyed to cover the full spectrum of the market, and the newly-offered 757 and 767 high-technology aircraft are designed for operating efficiencies in an environment of deregulation and higher fuel costs. Large operating losses for U.S. carriers over the past couple of years cut short a buying spree for new aircraft which began in the late Seventies, and Boeing has retrenched moderately from an employment high in early 1981. Even so, the cumulative order backlog remains impressively large. Over the next ten years, Boeing is forecasting a $1.26 billion world aircraft market (constant 1972 dollars), split $47 billion for replacement and $79 billion for fleet expansion; unquestionably, Boeing is well positioned in terms of product to garner a sizable share of that market.

Internationally, the European consortium Airbus Industrie has become a major competitor, particularly in foreign markets. In this context, federal

funding for the U.S. Export-Import Bank is a key to Boeing's ability to offer competitive financing.

The military side of the business, meanwhile, has gained rapidly over the past couple of years, thanks to increased federal emphasis on defense procurement. As a proportion of the total, Boeing's defense business is currently running about 22 percent of company-wide operations versus 10 percent going into 1980. An accelerated commitment to acquisition of defense hardware is expected to continue for at least the next five years, offering further opportunities for military contracts. ■

SELF-SUPPORTING SERVICES

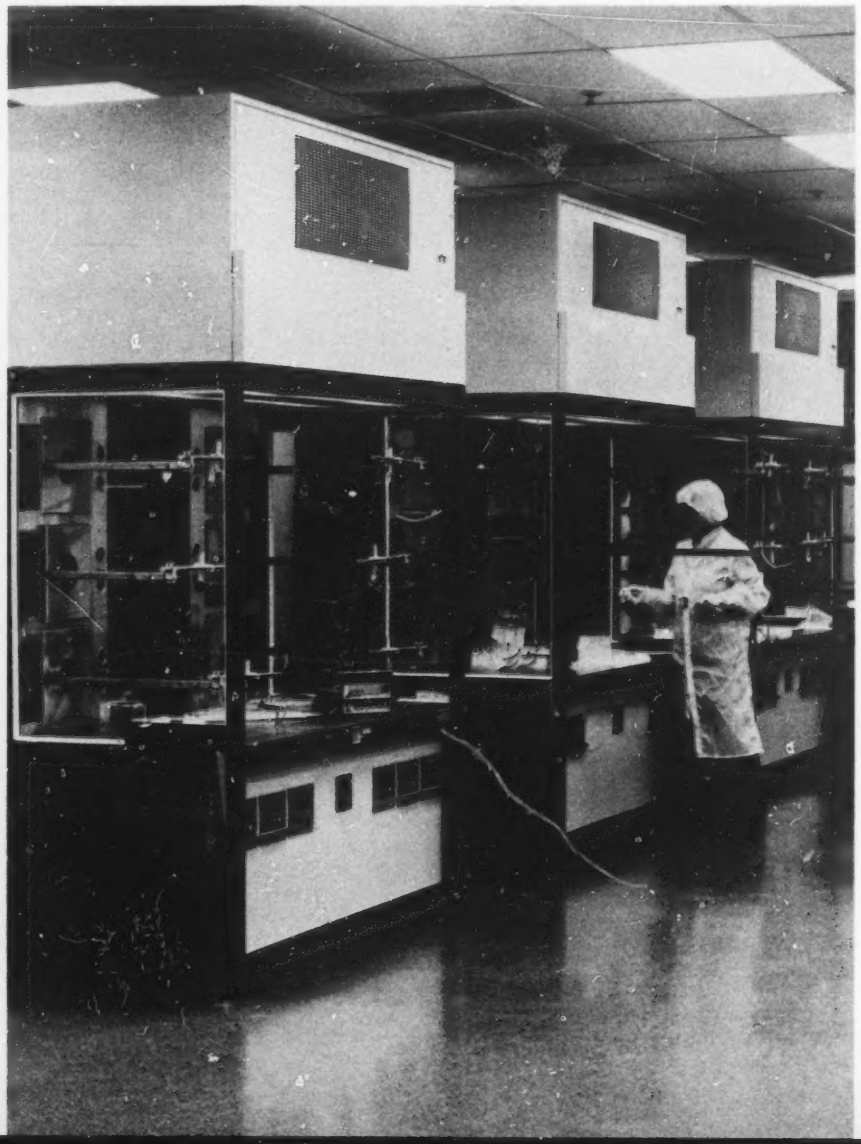
Service industries in the Northwest that can be considered "basic" (i.e., meeting demands from outside the Northwest) include tourism, support of foreign trade, and federal government activities. Tourism is an extremely important pillar of the Northwest economy. An independent study done in 1982 estimated that roughly 10 percent of Washington State's employment is visitor-driven — a proportion which may be even higher in the other, less-diversified Northwest states.

The scope of tourism is also broadening. While early tourist dollars were attracted largely by the region's scenic virtues and outdoor activities, the Northwest's public and private sectors have been investing heavily in facilities to attract more urban visitors who spend more per capita. Taking greater Puget Sound as an example, hotel space in downtown Seattle virtually doubled in 1982; the Tacoma Dome was inaugurated this spring; and plans for a $90 million convention center in Seattle are under way. Other Northwest urban areas have been making similar investments, and individual states have undertaken major nationwide media campaigns over the past couple of years.

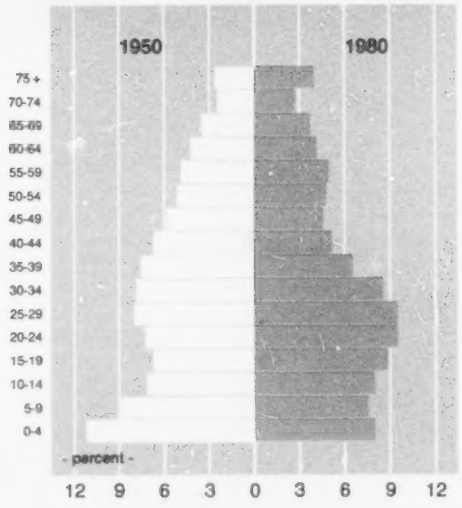
The Northwest's foreign trade sector has contributed heavily to growth in the regional economy during the past two decades. The impetus has developed in two ways: first, exports plus imports as a percent of U.S. GNP nationwide has more than doubled since the early Sixties; second, the Northwest's share of U.S. import-export traffic has also increased. Moreover, the Northwest now leads the nation in share of employment that is driven by foreign trade, and is the only U.S. region that runs a trade surplus with Japan. In addition to producing commodities and manufactured goods which are successfully exported, the Northwest's strategic location vis-a-vis high-growth economies of the Pacific Rim has encouraged large volumes of flow-through traffic. Oregon and Washington ports receive extensive amounts of Pacific Rim exports to the U.S. (largely destined for points east) and sizable flow-through of U.S. exports to Pacific Rim countries as well.

The biggest threat to Northwest trade and trade-servicing is the rising tide of protectionism. Examples of recent and potential U.S. protectionist moves include restrictions on Chinese textile imports (which have already touched off retaliation against U.S. soybean exports), a large tariff on foreign motorcycles

A microelectronics lab technician draws silicon wafers from a bank of ovens at one of the Northwest's most successful electronics manufacturing firms. Courtesy of Fluke Manufacturing Co., Inc.



POPULATION BY AGE GROUP
Pacific Northwest States
1950 and 1980



Source: U.S. Bureau of the Census.

The postwar baby boom begins to show in a population distribution for 1950, skewing the percentages in the early childhood years. By 1980, that bulge had moved into age groups associated with initial entry into the labor force. At both the national and regional levels, record numbers of new entrants were absorbed into the labor force during the Seventies. Increasingly over the next two decades, the population distribution will be centering more in the thirties and forties age groups.

(most of which are Japanese), and domestic content legislation on autos. If this latter measure is embraced, a full-scale trade war is conceivable. Clearly, the Northwest would be a big loser in such an event. Otherwise, the region is expected to continue to benefit from expanding international commerce.

Federal government employment can be considered a "basic" industry if its presence in a region is disproportionately large. While the Northwest accounts for about 4 percent of U.S. wages and salaries, the regional share in the federal sector is about 5 percent — larger by a factor of one-fourth. Federal civilian employment reflects the large amount of federally owned and managed lands, maintenance of the federal dam system, the Columbia Basin Irrigation Project, the Bonneville Power Administration, and other factors. The Northwest is also home base for numerous military installations. In Washington, Puget Sound attracts substantial Navy activity via the Puget Sound Naval Shipyard and the Bangor submarine base, and other areas in the Northwest receive payroll expenditures from the Army, Air Force, and other miscellaneous defense activities.

Within the region, Washington State attracts about half of federal direct payrolls, while Oregon and Alaska share a further third. For Alaska, federal government employment was a mainstay of the pre-pipeline economy. Also important, especially to Washington State, are government procurement contracts to private firms. Finally, the Northwest also receives more than its share of military retirees and ex-military inmigrants who have sampled the Northwest lifestyle during the course of their military careers. Federal ownership of lands and installations, paired with the technological expertise of Northwest industry, ensures a continuing strong government relationship in future years. ■

LOOKING AHEAD

Perspective is hard to come by at the nadir of a severe, lingering recession. The latest retrenchment, culminating a protracted period of national stagnation, has hit the Pacific Northwest very hard. A longer look backward — spanning the troughs and crests of several business cycles — provides a better perspective from which to view the future. Despite recurrent volatility, the region has grown at a rate moderately outpacing the nation as a whole; substantial diversification also has taken place. For the duration of the century, these longer-term trends once again are likely to prevail. Substantial changes in the structure of the Pacific Northwest economy no doubt will continue. Further, most analysts, both within and outside the region, believe it once again will outperform the national economic trend over the long pull.

The National Backdrop

Compared with the past two decades, the national economy out to the year 2000 is expected to grow more slowly in terms of population, real output, and especially employment. Demographics play a significant role in this expectation; labor force growth will be slower as smaller numbers of youths come of working age. Output is expected to slow less: on average, the labor force will be gaining in years of experience, and firms can boost productivity by substituting more capital inputs for labor.

The shift in the composition of output from production of goods to performance of services is expected to continue. Within the former group, however, some sectors will be above-average performers. Prime candidates nationally are electrical and nonelectrical machinery, instruments, ordnance, chemicals, and plastics. Business spending will create expanded opportunities as business investment accounts for a higher share of economic activity — a trend already in motion according to rising inflation-adjusted shares of national product in the years 1959, 1969, and 1979. Conversely, housing investment is likely to account for a moderately lower share. A trend toward internationalization of economic activity has also been under way as indicated by rising shares of exports and imports relative to total U.S. output. Unless sidetracked by a turn toward protectionism, world trade is anticipated to become increasingly important as an outlet for U.S. products for the duration of the century.

On Track to 2000

Attempting to preview the path of one region within the U.S. is an even riskier task than looking forward for the nation as a whole. Interregional mobility of both firms and individuals is just one complication. Nonetheless, regional

trends already in place, plus assumptions with respect to the national outlook, provide a basis for a "best guess" projection. Presuming that the region will moderately outperform a more slowly growing U.S. economy, Pacific Northwest (five state) nonfarm employment could be in excess of 5 million by the year 2000 and support a population of roughly 12 million residents.* Relative to 1980 employment of 3.4 million and population of 8.9 million, implied annual compound growth rates would be at about 2.0 percent and 1.5 percent, respectively, from 1980 to 2000 — slower than the 3.6 percent and 1.8 percent rates of the 1960 to 1980 period.

Trends already in place in the Northwest economy are suggestive of the likely growth track to 2000. Resource industries will continue to play an important role; relatively, however, their importance will shrink further, especially as measured by employment. Promising areas for future growth in manufacturing include production of machinery and instruments — sectors which have already established a significant regional foothold and which are rated likely to be top performers at the national level. Elsewhere in manufacturing, transportation equipment will continue to be a significant, if cyclical, factor. Finally, continued increases in the absolute size of the regional economy should broaden opportunities for more local production in areas ranging from furniture manufacture to printing.

Relative to the performance of services, rather than the production of commodities and manufactured goods, regional development will benefit from commitments to foreign trade and the visitor industry. Moreover, the continuing gradual national shift to more service-oriented industries also will be felt regionally. Again referencing the period from 1959 to 1979, regional wage and salary growth was particularly rapid in the areas of financial, health, legal, and miscellaneous business services. Even so, in a number of categories regional shares compared to national totals still were low, indicating the potential for further local catch up.

Closing Thoughts

To some extent, exactly how the region does develop is beyond local control. Representing roughly 4 percent of national business activity, the Northwest responds to national — and international — economic activity to a far greater degree than it contributes. Nonetheless, regional entrepreneurs can aim to maximize area competitive advantages and minimize disadvantages. Qualities which will serve the Northwest exceeding well in coming years include flexibility and innovation, both of which suggest the ability to respond to change. Resource industries are confronted with limited supplies of some raw materials; rising costs of transportation, electricity, and irrigation; and approaching saturation in selected markets. Responses to help sustain the sector: forest products producers developing new products, production techniques, and offshore markets which utilize location/transportation cost advantages. Similar thrusts are taking place in farming, fishing, and mining — including development of additional resources.

For high-tech industry, the ability to respond to rapid change is vital. Regional firms — both large and small — have acquitted themselves well in competition to develop new technologies and markets. Regional advantages to serve as a springboard for future growth include a long-standing commitment to education, an existing base of research and technological industry, as well as locational amenities. In this hotly-contested field, however, regional advantages will have to be nurtured and enhanced just to stay even.

While the composition and activities of Pacific Northwest industry change over time, so will those of the Northwest workforce. Aging of the population will boost the numbers of workers in their thirties and forties, while the volume of new entrants will recede. High growth industries should provide new openings as well as advancement opportunities for a growing cadre of professional and technical workers; e.g., office managers, electronic and medical technicians, accountants, and computer specialists. At the same time, additional semi-skilled and unskilled openings will be available in the provision of food, health, and personal services, among others. As the industry base continues to undergo rapid change, however, the availability of training and, if necessary, retraining will require high priority to ensure the closest possible match between people looking for work and jobs that need workers. ■

Northwest firms have been at the leading edge of combining data processing, telecommunications, and software technology to improve the effectiveness and distribution of information. Courtesy of ISC Systems Corporation.

*Economic/Demographic Projections, Inputs to BPA Energy Forecasting Models, Economic Studies Section, Bonneville Power Administration, January, 1983. Expanded to include Alaska and eastern Montana by S-FNB Economic Research Department.

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